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For CDC veterinarians, “All Creatures Great and Small” includes people

by Joan Capuzzi Giresi, C’86 V’98

Pets can have a positive impact on the human condition. This we know. But at the Centers for Disease Control and Prevention (CDC) in Atlanta, veterinarians are also doing their part to improve human health.

Charles E. Rupprecht, V’85, Cathleen (Lanutti) Hanlon, V’87 GR’94, and Peter M. Schantz, C’61 V’65, have taken their veterinary training to the CDC in Atlanta, where they work to combat zoonoses that threaten public health worldwide.

Charles Rupprecht isn’t sure if it’s the dog bite he received as a youngster, the bat that invaded his childhood home, or the occupational hazards that rabies sometimes poses, but some powerful force triggered the mythos of rabies for him. Today, Rupprecht is chief of the Rabies Section of the CDC’s National Center for Infectious Diseases, where he heads up national efforts to eradicate rabies both at home and abroad.

As a child growing up in Trenton, N.J., Rupprecht wanted to be a paleontologist. Armed with a bachelor’s degree in ecology from Rutgers University and a master’s degree in zoology from the University of Wisconsin, Rupprecht went to Panama to study neotropical bat ecology. While there exploring potential Ph.D. projects, he met a veterinarian who was working with night monkeys ... Rupprecht’s fate was sealed.

“I’d never thought about combining veterinary medicine and basic biology or zoology before,” he says, “but I knew when I came back from Panama, I wanted a happy marriage between veterinary medicine and biology.”

Upon his return home, Rupprecht enrolled simultaneously in veterinary school at Penn and a doctoral program in biology at the University of Wisconsin, where he wrote his dissertation on the epidemiology and antigenic characterization of rabies virus variants in North America. Serendipitously for Rupprecht, raccoon rabies was first discovered in Pennsylvania in the spring of 1982, during his first year in vet school. Intrigued by the development, he teamed up with noted researcher Hilary Koprowski, M.D., who was developing rabies vaccines across the street at The Wistar Institute.

While Rupprecht enjoyed his clinical work at Penn, his prior experiences in the rain forest left him with little intention of becoming a tra-

ditional veterinarian.

“Given the biodiversity that exists, I found a sole focus on cats and dogs to be intellectually limiting,” he says.

Rupprecht adds that his professional endeavors have benefited greatly from Penn’s emphasis on the basic sciences, its diverse faculty, and its flexible rotation schedule that left him time to pursue his research interests while in school.

At the CDC—the lead federal agency for protecting the health and safety of people at home and abroad, and also the national reference center for rabies—Rupprecht, 47, oversees



Charles E. Rupprecht, V’85

research on the pathogenesis, epidemiology, diagnosis and prevention of rabies in the United States. And as head of the World Health Organization (WHO) Collaborating Center for Rabies Reference and Research, he combats the disease on an international front.

Rupprecht is proud to report that national rabies cases are now at an all-time low, with just 89 last year, down dramatically from over 9,000 annually in dogs alone during the World War II years.

But Rupprecht is not ready to breathe a sigh of relief. “I don’t yet feel fulfilled because the task in front of us is still quite formidable,” he laments. “These very small RNA viruses are constantly evolving.

“We live in a sea of rabies, and we need to be always on guard for new cases.”

While noting that some confusion regarding rabies titers, booster vaccines and quarantine regulations still exists among veterinarians, Rupprecht says, “The veterinary community deserves a huge pat on the back for the decline in cases.”

Cathleen Hanlon, who works with

Rupprecht as the veterinary medical officer in the Rabies Section, says that veterinarians are uniquely poised to pull the plug on rabies. “They are the first and most critical line of contact when there’s a potential exposure to rabies,” she explains.

Veterinarians, she adds, generally are far more knowledgeable about rabies than are their counterparts in human medicine. And from her experience working side-by-side with both veterinarians and medical doctors, she has concluded that their respective academic curricula render veterinarians more suited to transitioning into the field of public health than medical doctors are to working in animal health.

Hanlon, who holds a bachelor’s degree in animal science from Rutgers University, was first drawn to epidemiology during a veterinary school work-study project on transitional cell carcinoma in animals. Then during the last two years of her veterinary education—the raccoon rabies epidemic at its height—she worked as a research assistant in Wistar’s Rabies Unit with Rupprecht and Koprowski. There, Hanlon worked in the lab developing vaccines, and in the field live-trapping raccoons.

After she graduated, Hanlon stayed on at Wistar as a veterinarian associate, while she conducted rabies research to earn her Ph.D. from Penn in comparative medicine. She then joined Rupprecht and Koprowski at Thomas Jefferson University’s Center for Neurovirology. When the rabies epidemic hit Albany, N.Y., she was hired there as acting state public health veterinarian.

Hanlon credits her Penn experience for much of her professional success. “The rigorous, high-quality education at Penn provided me with the tools to branch into many different areas in addition to the fundamentals in clinical care,” she says.

The veterinary courses that Hanlon has found to be most applicable to her job, she says, are physiology, epidemiology, public health, medicine, microbiology, neurology and surgery. She spends almost half of her time in the lab, and the remainder divided between telephone consultations and animal colony work. She also trains state health personnel around the country in techniques for live-trapping, sedating and testing wild animals.

True to her veterinary nature, Hanlon, 43, enjoys the “touchy-feely” aspect of her job the

most, working with the lab animals to assess their clinical condition, evaluate their temperament, make handling and sedation judgments and determine appropriate routes of medication.

"My job runs the gamut, from the ivory-tower, sitting-at-your-desk thinking to fundamental research in the lab to clinical care and field work," she says.

Hanlon's work comes with the obvious occupational hazards. She will probably never forget being bitten by a vampire bat she was removing from a net while investigating a rabies outbreak among cows in Venezuela. The rabies virus has earned Hanlon's healthy respect for the "interesting way it can navigate through the central nervous system of its host in order to affect its behavior—causing aggres-



Cathleen (Lanutti) Hanlon, V'87 GR'94, bat netting at night in southern Georgia.

sion, inquisitiveness and vocalization—for transmission before killing it.

"A rabid animal would be useful for everyone to see at least once in their life," she says. "It would make the hair on the back of your neck stand on end."

Peter Schantz is just as fascinated with his pathogens of choice—zoonotic helminths. He finds them biologically intriguing because of their transmission dynamics and their interaction with the human population. In his job, Schantz travels the world, collecting samples in butchered animals, collaborating with local health officials and veterinarians to develop educational materials for local distribution, and supervising research on disease pathogenesis.

"I enjoy the fact that my career has enabled

me to do lab and field work, collect epidemiologic data in humans and animals, present the data, and see my work get published and then result in measurable disease reduction," he says.

Schantz points to the success he and his colleagues have had in reducing the incidence of trichinosis in the United States by educating the pork industry on healthier production methods. He is also encouraged by the demonstrable impact his group has had on *Echinococcus granulosus* in Argentina, Peru and Chile by working with local veterinarians and physicians to develop effective parasite control programs.

Schantz, who holds a bachelor's degree in anthropology from Penn, says he enjoys studying zoonotic diseases whose propagation is rooted within different cultural traditions like sheep herding, and often within grim poverty.

"Whether you're talking about transmission of echinococcus in Tibetan nomadic sheep herders or toxocara in American children who have a new litter of puppies with roundworms, it's a natural follow-up for a person trained in anthropology and veterinary medicine," he explains.

Growing up in southern New Jersey, Schantz channeled his childhood love of animals into a yearning to become a veterinarian. He became interested in a career in public health when he spent the summer after his first year of vet school working for the California Department of Health Services to help eradicate *Trypanosoma cruzi*—the "kissing bug"—which causes allergic reactions in the people it bites.

He also remembers his interests in public health being nurtured by his veterinary school professors. "Penn's academic tradition was inspirational to me," says Schantz. "The faculty was interested that I was interested in research and public health, and they fostered this."

After earning his veterinary degree, Schantz headed to the University of California, Davis, School of Veterinary Medicine for a job as an epidemiologist. Although he also worked part-time as an associate at a local animal hospital, he says he regrets not spending more time in private practice before moving into public health exclusively.

Schantz recalls that, at the time, he ascribed to the "Peace Corps mentality." I became interested in the world outside the U.S." After spending four years investigating helminthic zoonoses in South America, he returned to the

United States in 1974 to work for the CDC.

Schantz's work with the CDC has spanned many countries and types of helminthic diseases, from cysticercosis and intestinal nematodiasis in Mexico and Ecuador, to hydatid dis-



Peter M. Schantz, C'61 V'65

ease in China and Tibet, to Guinea worm infections in Nigeria, to leishmaniasis in the United States.

Schantz, 63, enjoys the regular interaction he has with veterinarians in many different professions, including those who work at the state and local levels, and those in academia and private practice. Dr. Schantz returns to the School every spring to teach a seminar on zoonotic diseases.

"I have one foot in the veterinary arena and one foot in the human medical arena," he says.

Schantz believes that local veterinarians hold the key to disease control for zoonotic helminths. "Veterinarians in private practice," he says, "can every day do good things for human health."

CDC Rotations for Veterinary Students

The CDC offers six- to eight-week epidemiology rotations for fourth-year veterinary students. The project-based rotations include desk, lab and field work. Applications are due by the end of the third year, and applicants may specify an area of interest within public health. Travel and accommodations in Atlanta are not provided by the CDC, but listings of housing options are furnished upon request. Interested students may contact the CDC's Epidemiology Program Office via e-mail at <pbellamy@cdc.gov>.